



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
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Takeshi FUKUDA et al.) Group Art Unit: 1617
)
Application No.: 09/834,651) Examiner: L. Q. Wells
)
Filed: April 16, 2001)
)
For: FLAKY α -ALUMINA PARTICLES)
AND METHOD FOR PRODUCING)
THE SAME)
)

EXHIBIT A

to Preliminary Amendment of July 28, 2003

Japanese Industrial Standard R 6123-1987

"Method for Chemical Analysis of Aluminous Abrasives"

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JIS

This English version is for information purpose only.
The original Japanese text of this Standard was
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JAPANESE INDUSTRIAL STANDARD

Method for Chemical Analysis of Aluminous Abrasives

JIS R 6123—1987

Translated and Published

by

Japanese Standards Association

In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

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JAPANESE INDUSTRIAL STANDARD

J I S

Method for Chemical Analysis of
Aluminous Abrasives

R 6123-1987

1. Scope

This Japanese Industrial Standard specifies the method for chemical analysis of aluminous abrasives, hereinafter referred to as the "abrasives".

Remark: The units and numerical values given in { } in this Standard are based on the traditional units and are currently the criteria in force.

2. Analytical Items

The analytical items for abrasives shall be divided according to the type as given in Table 1.

Table 1. Analytical Items

Analytical items \ Type	A	WA	PA	HA	AE	AZ
Ignition loss (Ig. loss)	○	○	○	○	○	○
Silicon dioxide (SiO ₂)	○	○	○	○	○	○
Ferric oxide (Fe ₂ O ₃)	○	○	○	○	○	○
Titanium oxide (TiO ₂)	○	—	△	△	○	○
Calcium oxide (CaO)	○	—	—	—	○	—
Magnesium oxide (MgO)	○	—	—	—	○	—
Zirconium oxide (ZrO ₂)	○	—	—	—	○	○
Sodium oxide (Na ₂ O)	—	○	○	○	—	○
Chromium oxide (Cr ₂ O ₃)	—	—	○	—	—	—
Aluminium oxide (Al ₂ O ₃)	○	○	○	○	○	○

Remark: The mark ○ means the item to be analyzed and the mark △ means the item to be analyzed only when titanium oxide is contained.

Applicable Standards, Corresponding International Standard and Reference Standard: See page 35.

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3. General Items

The general items commonly applied to chemical analysis shall be in accordance with JIS K 0050, those to related absorptiometry, in accordance with JIS K 0115, and those related to atomic absorption analysis, in accordance with JIS K 0121.

The symbols for classes of the abrasives shall conform to JIS R 6111 (see Table 2).

Table 2

Division	Class	Symbol
Aluminous abrasives	Brown aluminous abrasive	A
	White aluminous abrasive	WA
	Pink aluminous abrasive	PA
	Mono-crystalline fused aluminous abrasive	HA
	Artificial emery abrasive	AE
	Aluminous zinconia abrasive	AZ

4. Sample

Take approximately 10 g of the abrasives from one testing unit according to JIS R 6003 put in a flat weighing bottle (60 mm x 30 mm). After drying for 1 h in an air oven of $105 \pm 5^{\circ}\text{C}$, dose the bottle tight and keep it in a desiccator to supply as a sample.

Sample shall, as a rule, be treated in the state of original grit, but, in case pulverization is necessary, the mortar with no likelihood of contaminating the sample shall be used (for instance, the mortar made of boron carbide). The sample, however, shall be pulverized to such a degree as passing through the sieve of 150 μm , and over-pulverization shall be avoided.

5. Rounding off Analysis Results

Analysis results shall be expressed in percentage, and be rounded off to the second decimal place in accordance with JIS Z 8401.

6. Determination Methods by Classification

The determination methods for abrasives shall be divided according to the class.

- (1) Determination methods of A and AE
- (2) Determination methods of WA, PA and HA
- (3) Determination method of AZ

7. Determination Methods of A and AE

7.1 Determination of Ignition Loss

7.1.1 Summary Heat strongly the sample at 1000°C, and determine the decrease in weight as the ignition loss.

7.1.2 Apparatus and Device Apparatuses and device to be used shall be as follows:

- (1) Platinum Crucible with Cap (hereinafter referred to as the "crucible") For instance, No. 30 specified in JIS H 6201.
- (2) Electric Furnace Shall be capable of keeping temperature at 1000°C.
- (3) Thermometer Shall be capable of measuring temperature up to 1000°C.

7.1.3 Quantity of Sample Approximately 1 g of sample shall be weighed out.

7.1.4 Operation Determination operation shall be carried out as follows:

- (1) Weigh approximately 1 g of the sample accurately to the nearest 0.1 mg into the crucible preliminarily set at a constant weight of $1000 \pm 50^\circ\text{C}$.
- (2) Place the crucible in the electric furnace controlled at $1000 \pm 50^\circ\text{C}$, and heat strongly for 1 h. Then cool sufficiently in a desiccator, and weigh its mass. Repeat this operation until constant weight is obtained.
- (3) Ignition loss shall be calculated from the following formula:

$$\text{Ignition loss (\%)} = \frac{m_2}{m_1} \times 100$$

where Ignition loss (%) : content of ignition loss (%)

m_1 : quantity of sample taken (g)

m_2 : quantity decreased by ignition (g)

7.2 Determination of Silicon Dioxide

7.2.1 Division of Determination Methods Either of the following two methods shall be adopted for silicon dioxide determination.